

The Blossoming Families Study: How Families with Multiples Cope

Thesis

Presented in Partial Fulfillment of the Requirements for the Bachelor of Science in Social Work

from the College of Social Work at The Ohio State University

By

Alison L Mooney

Undergraduate Program in Social Work

Ohio State University

2015

Thesis Committee:

Dr. Scottye Cash, Advisor

Copyright by

Alison Mooney

2015

Abstract

The rates of twin and high order multiple (HOM) pregnancies, pregnancies of triplets or more, have increased substantially over the past few decades due to older maternal age and the use of fertility treatments. Families who have multiples often experience hardships including: trouble conceiving, pregnancy complications, poor birth outcomes for mother and babies, exorbitant medical costs, numerous expenses for raising the children, physical and emotional strain on the family, and lack of assistance. The areas in which these families are thriving and those where they need more support remains unknown. This study examines the support system of families with multiples; identifies where they are thriving and areas they need assistance; and explores ways in which social workers can assist these families in their areas of highest need. Using a quantitative, cross-sectional online survey, mothers of young multiples answered questions about the conception, birth, and first year of their multiples' lives, including the involvement of social workers at each stage. A total of 52 mothers completed the survey. Results show that families with multiples struggle with many everyday activities. They thrive in the area of family relationships. The main supports for the participants are immediate and extended family. Social work intervention is extremely lacking with families of multiples, with only 4% of participants reporting interaction with a social worker during the conception process, 6% during the pregnancy, and 26% after the birth. Social workers can use this information to better intervene with families with multiples, particularly during the long bed rest many of the women experience, and prepare them for possible stresses ahead.

Dedication

To my parents, for your steadfast love, constant support, and continuous encouragement to follow my dreams.

Acknowledgements

This thesis would not have been possible without the support of The College of Social Work and the many wonderful people that call it home. I would first like to thank my wonderful thesis advisor, Dr. Scottye Cash, for patiently imparting her immense knowledge and wisdom about both families with multiples and research on me. A special thank you to the rest of the college of social work family, who have helped me immensely: Jennie Babcock, Andréa Severson, Dr. Audrey Begun, Dr. Katie Maguire Jack, Byron Roush, Kelley Cupp, and Lauren Haas-Gehres. Your help and guidance from the beginning has helped shape this project in innumerable ways. Thank you to the 2014-2015 Honors Social Work cohort for all the encouragement and laughs throughout this process. Additionally, I would like to thank my talented friend, Cara Rano, for using her remarkable creativity to bring my vision of The Blossoming Families Study to life. Finally I would like to thank the wonderful mothers of multiples who took the time to take my survey. It would not have been possible without any of you!

Curriculum Vitae

June 2011.....William V. Fisher Catholic High School

May 2015.....B.S. Social Work, Honors with Research Distinction,

Magna cum laude, The Ohio State University

Field of Study

Major Field: Social Work

Table of Contents

Abstract.....	3
Dedication.....	4
Acknowledgements.....	5
Curriculum Vitae.....	6
Chapter 1: Statement of Research Topic.....	8
Chapter 2: Literature Review	10
Chapter 3: Methodology.....	16
Chapter 4: Results.....	22
Chapter 5: Discussion.....	40
References.....	42
Appendices.....	45

Chapter 1: Statement of Research Topic

Introduction

Twin and higher order multiple pregnancies have been on the rise over the past few decades due to higher average maternal age and the use of fertility medications (Martin, Hamilton, Ventura, Osterman, & Mathews, 2013). Families with multiples face numerous challenges including: fertility treatments, bed rest, health complications with both the mother and babies, neonatal intensive care unit (NICU) stays, extra expenses, and everyday life with multiple infants (Adashi et al., 2003; Bachman and Lind, 1997a; Dill, 2006; Greenfield, 1997; Jenkins & Coker, 2010; Lemos, Zhang, Van Voorhis, & Hu, 2013; Martin, Hamilton, & Osterman, 2012; Whitaker, 1999).

Although there has been a great deal of research concerning the stressors families with multiples face, limited research has been done to examine how the families overcome these challenges. With all the issues facing families with multiples, it is imperative that they receive support throughout the pregnancy, birth, and first few years of the babies' lives.

Social workers are trained to help individuals and families cope with many of the stressors that may come with a multiple pregnancy and birth. They are present in some fertility clinics, hospitals, and NICUs (Barbosa, 2013, Greenfield, 1997). A 2010 study of seven triplet parents found that social workers were not actively involved in the lives of the families (Jenkins & Coker). No known studies have been performed to examine the intervention of social workers with a greater number of families with multiples and at various times throughout the families' journey with multiples.

Purpose of Study

This study aims to explore areas in which families with multiples are thriving and identify where they need further assistance. It will look at the support systems of the families to see if and where there are voids. The families' interactions with social workers at multiple points in time will be examined to evaluate whether or not these valuable trained professionals are effectively reaching the families throughout their journey with multiples. Finally, the researcher will consider ways social workers can best assist these families in their areas of highest need.

Research Questions

1. Are social workers actively involved in the conception process, pregnancy, birth, and first year of the multiples' lives? If so, how?
2. What are the characteristics of the support systems of families with multiples?
3. In what areas are families with multiples thriving?
4. In what areas do families with multiples need further support?

Chapter 2: Literature Review

Multiple Birth Statistics

The rates of twin and high order multiple (HOM) pregnancies, or pregnancies of triplets or more, have increased substantially over the past few decades. The twin birth rate increased by 76% from 1980 to 2009 (Martin et al, 2012). The HOM rate per 100,000 births rose more than 400% from 1980 to 1998 (Martin et al., 2013). This increase in multiple births has been associated with older maternal age and the use of fertility treatments (Martin et al., 2013). Since 1980, the twin birth rate rose by almost 100 percent among women 35-39 years old and over 200 percent for women 40 years old and older (Martin et al., 2012). The chance of having a HOM pregnancy is highest among mothers 45 and older (Martin et al., 2013).

Stressors of Multiples

In every case of multiples, there are many hardships - some occurring before the pregnancy even begins and many lasting until the infants reach adulthood. These can include: trouble conceiving, pregnancy complications, poor birth outcomes for the mother and babies, exorbitant medical costs, numerous expenses for raising the children, and physical and emotional strain on the family.

Infertility.

Around two thirds of twin births since 1980 are likely the result of infertility treatments (Martin et al., 2012). An estimated 34% of HOM babies have been conceived using assisted reproductive technologies (ART) such as in vitro fertilization (Martin et al., 2013).

The infertility treatments that often accompany the birth of multiples can be physically, financially, and emotionally taxing (Jenkins & Coker, 2010). The impact of infertility affects

individuals as any other loss, and mourning frequently follows diagnosis (Bachman & Lind, 1997b). If a couple attempts to use ART to conceive, they may experience a “rollercoaster” of hope and despair, which has been described by other couples who have undergone these procedures (Greenfield, 1997). ART procedures can cost between \$4,000 and \$10,000 per treatment cycle and are usually only partially covered by insurance, if at all (Greenfield 1997). In these cases, mothers often go through a great deal of stress even before the babies are conceived.

Pregnancy complications.

When women who have undergone ART conceive, they frequently have a greater level of pregnancy anxiety and postpartum depression than women carrying babies conceived naturally (Jenkins & Coker, 2010). Since many women who carry multiples have undergone ART, these circumstances are common among them. Even if the mother has not undergone ART, all plural pregnancies are associated with many health concerns including: hypertensive disorders, urinary tract infections, placenta previa, anemia, vaginal-uterine hemorrhages, and placental abruptions (Adashi et al., 2003; Bachman and Lind, 1997a). Most mothers require bed rest. To prevent these complications and attempt to create better outcomes for the mother and babies, doctors sometimes encourage couples to consider multifetal pregnancy reduction. This is a very emotionally and physically difficult decision (Greenfield, 1997).

Birth complications.

The birth of the babies brings on a whole new set of difficulties. Almost all HOM births are preterm. In 2011, 36% of triplets and over 67% of quads and higher order multiples were delivered at less than 32 weeks compared to only 2% of singletons. This is considered very

preterm (Martin et al., 2013). Generally, the gestational age of the babies at birth decreases by 3 weeks for each additional fetus (Adashi et al., 2003). The preterm birth and low birth weight can cause many health problems such as: neurological impairment, blindness, organ dysfunction, impaired mental and language development, and cerebral palsy (Dill, 2006). In some cases, not all of the fetuses survive. All of the mortality rates – stillbirths, early neonatal death, and infant mortality – are higher in HOMs than in singleton pregnancies. In 2000, the mortality rate for singletons was 6.1 per 1,000 births. It was 31.1 per 1,000 births for multiples (Adashi et al., 2003).

Expenses.

All of the medical bills add to the many expenses that come with HOMs. A 2013 study published in the *American Journal of Obstetrics and Gynecology* found that pregnancies with triplets or higher order multiples cost nearly 20 times that of singleton pregnancies. This accounts for the healthcare costs of the mother from 27 weeks before delivery to one month after the delivery and the healthcare costs for the infants until their first birthday (Lemos, Zhang, Van Voorhis, & Hu, 2013). If any of the babies have persisting medical conditions, there could be lifelong costs related to them (Dill, 2006).

Healthcare costs are just the beginning of the expenses of parents with multiples. Many families must buy bigger cars to transport their growing family. Some must buy larger houses because they simply do not have enough room. Baby items such as car seats, cribs, bottles, and clothes must be purchased. These items cannot be passed down from sibling to sibling like most families, because all of the babies need the same items at once (Dill, 2006). A great deal of money must regularly go to diapers and formula. It can be difficult for both parents to work to

support the family, because childcare for so many children is expensive (Jenkins & Coker, 2010).

Although some companies used to send freebies to parents of multiples, a lot of these programs have ended since multiples have become much more common (Whitaker, 1999).

Emotional and physical stress.

According to a 1997 study by Garel, even in families of HOMs with material resources, emotional stress requiring psychological treatment is not uncommon (as cited in Adashi et al., 2003). On top of financial stress, many different factors put emotional strain on the parents of multiples. One of the most emotionally taxing situations is when one or more of the babies die. The parents may see the surviving babies as a constant reminder of the loss. In addition, parents often receive less sympathy because they still have one or more surviving babies (Adashi et al., 2003).

Even if all of the babies survive, the stress of having babies in the NICU is often hard on the families. This can be even more difficult if some of the babies are sent home with the parents and others remain at the hospital (Jenkins & Coker, 2010). When all of the babies are home, the parents must learn to care for multiple newborns at once. This is not as easy job. Even little tasks, such as going to the grocery store, become a big production that requires a great deal of planning. As a result, many mothers cannot take the babies out of the house and become isolated and homebound (Adashi et al., 2003).

Mothers are not the only members of the family who experience stress. Parents with older children sometimes feel like they only have time for the new babies and not their previous children (Jenkins & Coker, 2010). Older siblings are more likely to have behavioral problems or

be disturbed by the arrival of twins than single siblings (Adashi et al., 2003). This effect is most likely amplified as the number of babies increases. Also, while there are many supports, such as online groups, for mothers of multiples, there are few supports for fathers (Jenkins & Coker).

One parent of triplets described the initial time at home after the babies were born as one of “total mental and physical exhaustion” (Jenkins & Cooker, 2010). With HOM births on the rise, some families must learn to cope with more than double the amount of stress that triplets bring. Help from family and friends tend to drop off dramatically one year after the birth of the babies (Jenkins & Coker, 2010). Then, the parents are left to raise their newly enlarged families alone.

The Role of Social Workers

Social workers can play an integral role in the conception, pregnancy, birth, and NICU experiences of families with multiples. Social workers in hospitals and fertility clinics can help individuals navigate the often long and physically grueling process of infertility by providing education and support (Greenfield, 1997).

Hospital social workers can support pregnant mothers through the common emotional issues among women pregnant with multiples. These include feelings of: anxiety, grief caused by the loss of a “normal” pregnancy, boredom if the mother is on bed rest, guilt, fear, and loss of control. These social workers can also comfort mothers who lose one or more fetuses before delivery or who choose to undergo multifetal reduction. These women often need added support because well-meaning people may tell them that they should be happy about the surviving child(ren) and not grieve the loss (Bachman & Lind, 1997b).

NICU social workers are vital in providing support to families with babies in the NICU, a situation that stresses most families to the limit of their ability to cope (Bachman & Lind, 1997a). These roles potentially include: family education, supporting the family as decision makers, anticipatory guidance for developmental needs, family support for coping skills and/or end of life care, working with insurance companies to help with expenses, discharge planning, finding community resources, and follow-up appointments (Barbosa, 2013). NICU social workers often include siblings in the family assessment and treatment to help integrate the new babies into the family system. This is important because often older siblings are not able to see or touch the babies, which may create feelings of confusion, anxiety, guilt, disappointment, and fear (Bachman & Lind, 1997a).

A 2003 study, which sent questionnaires to 50 random hospitals asking about the Developmental Care Team (DCT) in their NICUs, found that many lacked a DCT altogether. Of the 31 institutions in 18 states who responded, only 20 had a DVT. Of those 20 teams, only 40% had a social worker on staff (Ashbaugh, Leick-Rude, & Kilbride, 2003). This can be further illustrated by a 2010 study of seven triplet parents, which found that social workers did not play a significant role in the lives of the families with multiples. Instead, the parents relied solely on the help and advice of doctors and nurses (Jenkins & Coker).

Summary Statement

As discussed, the possible stresses that families with multiples face are numerous and complex. They can begin as early as before the multiples are conceived and last long after they are born. In order for these families to thrive, they often need to receive support from conception to after the babies come home from the hospital. Though not thoroughly studied, it is believed that social workers do not play a major role in the lives of families with young multiples. This

study will look at the specific areas where these families are struggling and explore ways that social workers can better intervene and help the families flourish.

Chapter 3: Methodology

Research Design

The research design was a cross-sectional, quantitative, exploratory survey using the online survey software, Qualtrics. The researcher explored an alternative design that consisted of extended, in-person interviews with mothers of multiples, but decided on the online survey due to time constraints of both the researcher and participants.

The survey consisted of fixed-response, open-ended, and Likert-type scaled questions from “strongly disagree” to “strongly agree” with a “not applicable” option. The questions related to: demographics, the mothers’ experiences during the conception process, birth, and first year of the multiples’ lives, the characteristics of supporters, the presence of social workers at each stage, and the physical, financial, and emotional strain the families experienced. The survey was designed to answer the following research questions:

1. Are social workers actively involved in the conception process, pregnancy, birth, and first year of the multiples’ lives? If so, how?
2. What are the characteristics of the support systems of families with multiples?
3. In what areas are families with multiples thriving?
4. In what areas do families with multiples need further support?

Data Collection Procedure

Data collection began after approval of the study from The Ohio State University’s Institutional Review Board (IRB). All data was collected using an untimed online survey hosted by Qualtrics. Access to the survey was gained through a link posted on a personal, informational website promoting the study, www.blossomingfamiliesstudy.com. The website included a page

about the researcher, links to resources for families with multiples, and a link to the survey.

Screenshots of the website can be viewed in Appendix B.

The survey consisted of 64 questions, with some questions only being displayed to relevant participants using skip logic. The first three questions of the survey were screening questions to ensure that the participants were adult mothers of multiples who were age 10 or younger. These stipulations were put into place because allowing participants under the age of 18 would add a dimension to the study that the researcher was not focusing on at this particular time, and limiting the multiples' ages to 10 would allow the mother to more effectively remember details about the pregnancy, birth, and first year with the babies. Participants were required to pass all of the screening questions to be directed to the actual study questions. Participation in the study was voluntary, and participants had the opportunity to drop out of the survey at any time.

At the end of the survey, participants were given the opportunity to click on a link to a completely separate survey where they could enter their email address or phone number for the chance to win an incentive of one of six \$25 Target® gift cards. The survey was estimated to take about 15 minutes to complete. The surveys were live from October 7, 2014 to February 1, 2015 and again from February 6, 2015 to February 9, 2015, to allow for a few more participants to take them. Copies of the surveys used in the study can be viewed in Appendices C and D.

Sampling Procedures

The survey website was publicized through informational posters, postcards, and business cards. Copies of these recruitment materials appear in Appendix A. Recruitment materials were posted in grocery stores, laundromats, libraries, and other places of business in the Central Ohio

area. The link to the website was also posted on the social media site, Facebook, as well as in the bulletin of St. Rose of Lima Catholic Church in New Lexington, Ohio. Additionally, recruitment postcards were given to friends and relatives who know families with multiples. These individuals used snowball sampling and passed the word on to perspective participants.

The researcher originally planned to distribute recruitment materials at the Twins Days festival in Twinsburg, Ohio, but the study was not approved by the IRB in time. In addition, the investigator wished to recruit participants from online support groups for mothers of multiples, but these groups prohibited researchers to contact their members. Fortunately, one mother of multiples posed the survey link to her private Facebook group consisting of 38 mothers of multiples. Thirteen mothers were recruited from this page, making up 25% of the total sample.

Measures

Demographics.

Participants were asked a variety of demographic questions about themselves and their families. These included: the participant's year of birth, the participant's relationship status at the start of the pregnancy process, the partner's year of birth, the type of relationship the participant had with the partner, the age and order of the multiples, if there were any additional sets of multiples and their order, how many children were currently living in the household, and the participant's relationship to these children. All of these questions were either multiple-choice or provided a drop-down list with answers for participants to choose from.

Interactions with social workers.

At four separate points in the survey, participants were asked about their interaction with a social worker during different times throughout their experience with the multiples. These

were: while trying to conceive, during the pregnancy, in the hospital after the babies were born, and after the babies came home from the hospital. First, participants were asked if they met with a social worker at all during that particular time. If the participant answered “yes,” she was asked to describe the relationship in a provided text box.

Stressors.

Throughout the survey, participants answered several questions about stressors that families with multiples face that have been identified in previous literature. These included questions about fertility treatments, bed rest, health complications concerning both the mother and babies, the NICU, extra expenses, and everyday life with infant multiples (Adashi et al., 2003; Bachman and Lind, 1997a; Dill, 2006; Greenfield, 1997; Jenkins & Coker, 2010; Lemos et al., 2013; Martin et al., 2012; Whitaker, 1999). Question types included multiple choice, short answer, and Likert-scale type questions with answers that ranged from *strongly disagree* to *strongly agree* and had *neutral* and *not applicable* options.

Support.

The support (not including that of social workers) the participants and their families received was demonstrated by their answers to four questions. These questions asked: who helped care for the multiples, how long this help persisted, whether or not the participants connected with other mothers of multiples to help them cope, and how the public reacts to the multiples. The questions about who helped care for the babies and how long the help persisted were multiple-choice questions. The questions regarding connections with other mothers of multiples and the public’s reaction were Likert-scale type questions. The answers ranged from *strongly disagree* to *strongly agree* and had *neutral* and *not applicable* options.

Areas of success and struggle.

Because this was an exploratory study, most questions asked throughout the survey were used to measure areas in which the families were thriving and/or needed more support. These included questions in all of the categories aforementioned and explored variables such as: relationship characteristics, bed rest, health complications, breastfeeding, support, and everyday life with infant multiples. The question types were multiple choice, short answer, and Likert-scale type questions with answers that ranged from *strongly disagree* to *strongly agree* and had *neutral* and *not applicable* options.

Data Analysis

The raw data was periodically downloaded from Qualtrics to SPSS Statistics software. After the survey was closed and all data was downloaded, the researcher cleaned the data by labeling the variables, deleting the responses of a participant who did not meet the screening criteria but still took the survey, deleting the responses to one question that was unintentionally asked twice on the survey, and recoding the values on all of the Likert-scale type questions. The researcher combined the responses *strongly disagree*, *disagree*, and *neutral* into *disagree* and the responses *agree* and *strongly agree* into *agree*. The value for the response *not applicable* was changed to a missing value. This was done to simplify the analysis of the data from the Likert-type questions.

After cleaning the data, the researcher performed descriptive statistics on each variable. These included frequencies, mean, median, mode, standard deviation, minimum, maximum, skewness, and kurtosis. Cross tabulations with Chi Squares and Phi and Cramer's V tests were

also done to compare multiple variables, especially the order of multiples to several other variables.

To find the strengths and major stressors to the families, the researcher examined the answers to all questions pertaining to: fertility, health, bed rest, breastfeeding, the NICU, relationships, family, money, supports, and everyday life. This included all of the Likert-scale type questions. The investigator grouped these variables into strengths or stressors, depending on how the majority of participants answered the questions. The researcher then looked for trends within these categories.

Chapter 4: Results

Characteristics of Sample

As shown in Table 1, 52 mothers of multiples completed the survey, with 46 being mothers of twins and 6 being mothers of triplets. One woman (1.9%) had a previous set of twins before her current set of multiples. The ages of participants ranged from 27-57, with the mean age of the participants being 38.4 (SD=5.8). The ages of participants when they delivered the multiples ranged from 24-47, with their mean age being 33.24 (SD=4.39).

Most of the participants (96.2%) were married. A high majority of the participants (96.2%) were in a heterosexual relationship when the multiples were conceived. The ages of all participants' partners ranged from 28-60, with the mean age being 40.73 (SD=7.08). Nearly all of the participants (96.2%) were still with the same partner they were with during the pregnancy. All but one of the partners was present for the birth of the multiples.

Table 1

Demographics of Participants and Partners

Demographic	Percentage, Mean (Standard Deviation)
Mother Age at Time of Study (n=52)	38.4 (5.8)
Partner Age at Time of Study (n=52)	40.7 (7.08)
Relationship Status at conception	
Married	96.2%
Engaged	1.9%
Dating	1.9%
Type of Relationship	
Same Sex	3.8%
Heterosexual	96.2%
Still With Same Partner	96.2%
Partner Present at Birth	98.1%

The number of children in the participants' households ranged from 2-9, with the median age being 4. All of the children living with the participants were their biological children. The mean age of the most recent set of multiples was 6.1 (SD=3.23). This information is displayed in Table 2.

Table 2

Characteristics of Participants' Children

Variable	Percentage or Median
Median Number of Children in Household (n=52)	4
Relationship to Children	
Biological	100.0%
Order of Most Recent Set of Multiples	
Twins	88.5%
Triplets	11.5%
Median Age of Most Recent Set of Multiples	6
Additional Set of Multiples	1.9%
Order of Additional Sets of Multiples (n=1)	
Twins	100.0%

Interactions with Social Workers

As displayed in Table 4, the researcher found that social workers were not often involved with families of multiples during the conception process and pregnancy, in the hospital after the babies were born, and after the multiples came home from the hospital. Although 51.8% of participants reported undergoing some type of fertility treatment (see Table 7), only 3.8% of those women interacted with a social worker during this often-stressful process. During the pregnancy, merely 5.8% of women reported interacting with a social worker, though 61.5% of participants were put on bed rest and 82.7% of the women experienced at least one pregnancy complication (see tables 10 and 8, respectively). No triplet mothers met with a social worker

during the pregnancy. The most common time for a social worker to intervene was in the hospital after the babies were delivered (21.2%). Sixty-six point seven triplet mothers reported seeing a social worker in the hospital after the babies were born as opposed to 15.2% of twin mothers, a significant difference ($df = 1, p = .004$). Only 17.3% of families had contact with a social worker when the babies came home from the hospital.

Table 4

Interactions with a Social Worker

Time of Interaction	Percentage (n=52)
Conception Process	3.8%
Pregnancy	5.8%
In Hospital Post Delivery	21.2%
Post Hospital	17.3%

When social workers did intervene, they often assisted in setting the family up for services and public benefits. These included: insurance, The Special Supplemental Program for Women, Infants, and Children (WIC), the Children with Medical Handicaps Program (BCMH), Help me Grow, and Caring for 2.

WIC is a program that provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk (United States Department of Agriculture, 2015). BCMH is a health care program in the Ohio Department of Health that links families of children with special health care needs to a network of quality providers and helps families obtain payment for the services their

children need (Ohio Department of Health, 2014). Ohio's Help me Grow program aims to ensure children receive a healthy birth and resources to have a healthy start in life by providing home visiting services to at-risk pregnant women and an early intervention program for children under the age of three with developmental delays or disabilities (Ohio Department of Health, 2014). Caring for 2, a Columbus Public Health program, aims to lower the high African American infant mortality rate by providing services to increase access to healthcare and social services for African American women and their infants in three Columbus neighborhoods (Columbus Public Health, 2010).

In addition to connecting families with these programs, social workers also made sure some of the participants had resources in the hospital including parking vouchers, meal passes, and places to stay, like the Ronald McDonald House, if the babies were in the NICU. Many participants mentioned that their time with a social worker was brief, often just an introduction or a short check-in. A few women reported that they had follow-up with a social worker in the form of a phone call or home visit after they returned home from the hospital. The different interactions the participants had with social workers can be seen in Table 5.

Table 5

Roles of Social Workers when Working with Participants

Time of Interaction	Role
Conception Process	Assigned by fertility clinic Assisted mother considering adoption
Pregnancy	Checked in about NICU and first few months at home Helped apply for public benefits and programs
In Hospital Post Birth	Helped apply for benefits (BCMH, SSI) Provided assistance with food, parking, and places to stay Helped explain doctors' information about multiples Offered resources for assistance after discharge
Post Hospital	Referred families to public programs and benefits Home visit and check-in calls Provided information on insurance Provided breastfeeding support

Support System

Every participant had some form of help (not including the social workers) after she brought the multiples home from the hospital. The most common support was immediate family, with 90.4% of mothers reporting receiving help caring for the multiples from their spouse or other children. Extended family - parents, grandparents, siblings, aunts, uncles, cousins, nieces, and nephews - also assisted the majority (88.5%) of participants. All reported supports for the families are displayed in Table 6.

The length of time help persisted ranged greatly from family to family. Of those who responded (n=44), the highest number of participants (42.3%) received outside help caring for the multiples during the first four weeks. Several participants (19.2%) reported having outside help for 11 or more months. All responses concerning the timeframe of outside support are listed in Table 6.

Table 6

Support System of Participants

Characteristic	Percentage
Who Helped* (n=52)	
Immediate Family (Spouse, Other Children)	90.4%
Extended Family (Parents, Grandparents, Siblings, Aunts, Uncles, Cousins, Nieces, Nephews)	88.5%
Friends	30.8%
Neighbors	7.7%
Church Members	3.8%
Paid Nanny, Babysitter, Housekeeper	15.4%
Length of Help (n=44)	
1-2 Weeks	26.9%
3-4 Weeks	15.4%
5-7 Weeks	3.8%
2-4 Months	15.5%
5-7 Months	5.8%
11+ Months	19.2%

*This was a multiple-response question

Areas of Success

After grouping the variables pertaining to strengths and major stressors of the families, the researcher found the theme that families are thriving. As discussed in the previous section, immediate and extended family were the main supports to the participants after the multiples came home from the hospital (see Table 6). Nearly all (96.2%) of the participants were still with the same partner as during their pregnancies with the multiples. Only one partner was not present for the birth of his or her multiples. Over three-quarters of the sample (76%) believe that their relationship with their partner was not negatively affected by the birth of the multiples.

The responses concerning siblings were also relatively positive. Of the families with additional children, 64.7% felt as if they had not neglected their other children after the arrival of the multiples. In addition, 87.1% of participants did not think their additional children began acting out after the multiples were born.

The families possessed other strengths relating to health, social support, and everyday life with multiples. Most women (80.8%) were able to begin breastfeeding in the hospital, which has numerous health benefits (United States Department of Health and Human Services, 2011). Additionally, 62.7% of participants connected with other mothers of multiples for support and guidance. It should be noted that this number might be inflated due to the large number of women recruited from a multiples support group on Facebook. Most of the sample (88%) experienced positive reactions to the multiples from the public. Finally, 68.3% of the sample believed that public equipment (such as highchairs) was not lacking. However, if broken down into order of multiples, 80% of triplet mothers did not agree.

Areas of Struggle

Health.

Health complications with the mothers and babies were common during the conception, pregnancy, delivery, and after the multiples were born. Several mothers underwent fertility treatments in order to become pregnant with the multiples. The most common form of fertility treatment was prescription fertility medications, at 32.7% of the whole sample. Only 28.3% of mothers of twins compared to 66.7% of triplet mothers used prescription fertility medications, but this was not a statistically significant difference ($df = 1$, $p = .059$). A quarter of the sample used in vitro fertilization (IVF) to conceive. This breaks down to 23.9% of twin mothers and 33.3% of triplet mothers. Again, this was not a statistically significant difference ($df = 1$, $p = .616$).

Although several women underwent various fertility treatments, more women in general conceived the multiples naturally (48.1%). Over half of the twins (54.3%) were conceived without the use of any fertility treatments. This was not the case for triplet mothers. No triplets in the sample were conceived without the use of some kind of fertility treatment. The difference between twin and triplet mothers concerning the overall use of any fertility treatments was significant ($df = 1$, $p = .012$). A breakdown of all fertility treatments used in the conception of the multiples can be seen in Table 7.

Table 7

Fertility Treatments Used

Type of Treatment	Percentage (n=52)
Prescription Fertility Medications	32.7%
In Vitro Fertilization	25.0%
Surrogacy	0.0%
None	48.1%
Other	3.8%

*This was a multiple-response question

Most participants experienced health complications during the multi-fetal pregnancy. Only 17.3% of women reported a complication-free pregnancy. The most common complication was nausea, with 44.2% of the women experiencing it during the pregnancy. Preterm labor was also prevalent, with 5 sets (9.6%) of multiples being born before 30 weeks gestation, and 28 sets (48.08%) born between 30 and 36 weeks (See table 10 for mean weeks gestation). The mean gestation for twins was 35.6 weeks (sd = 2.9), and the mean gestation for triplets was 31.8 weeks (sd = 4.3). This was a significant difference ($df = 13$, $p = .011$). See table 8 for a list of all pregnancy complications asked about in the survey and table 9 for additional complications reported by the participants.

Table 8

Pregnancy Complications

Complication	Percentage (n=52)
Anemia	17.3%
Depression	3.8%
Gestational Diabetes	5.8%
Hemorrhages	1.9%
Hypertensive Disorders	1.9%
Miscarriage	1.9%
Nausea	44.2%
Preeclampsia	15.4%
Preterm Labor	30.8%
UTI	3.8%
None	17.3%
Other	23.1%

*This was a multiple-response question

Table 9

Additional Pregnancy Complications Reported by Participants

Complications	Description
Monochorionic-monoamniotic twins	Identical twins who share both a placenta and an amniotic sac (Children's Hospital of Wisconsin, 2015)
Reflux	
Twin to Twin Transfusion Syndrome	Condition in which blood passes unequally between twins in a shared placenta (Children's Hospital of Philadelphia, 2015)
Shortened cervix	
Factor V Leiden	Mutation of one of the clotting factors in the blood that can increase a person's chance of developing abnormal blood clots (Mayo Clinic, 2012)
Tubal pregnancy	
HELLP Syndrome	Pregnancy complication consisting of the breakdown of red blood cells (hemolysis), elevated liver enzymes, and low platelet count (Preeclampsia Foundation, 2015)
Cyst on fallopian tubes	
Hyperglycemia	High blood glucose (sugar) (Cleveland Clinic, 2015)

The majority of participants (61.5%) were put on bed rest during their pregnancies, with their mean weeks on bed rest being 7 (sd = 4.4). Of mothers of twins, 56.5% were on bed rest. The mean number of weeks on bed rest for twin mothers was 6.92 (sd = 3.9). All mothers of triplets were on bed rest during their pregnancies. Their mean number of weeks on bed rest was

7.33 (sd = 6.8). The difference between twin mothers and triplet mothers being on bed rest was significant ($df = 1$, $p = .040$). See Table 10 for information about bed rest.

Table 10

Pregnancy and Delivery Experiences

Experience	Percentage, Mean (Standard Deviation) (n=52)
Put on Bed Rest	
Twins	56.5%
Triplets	100%
Mean Weeks on Bed Rest	
Twins	6.9 (3.9)
Triplets	7.3 (6.8)
Mean Weeks Gestation	
Twins	35.6 (2.9)
Triplets	31.8 (4.3)
Delivery Type	
Vaginal	26.9%
Cesarean Section	71.2%
Combination	1.9%
Delivery Complications	
Mother	17.3%
Babies	19.2%

Several mothers and babies experienced complications during the delivery process (see Table 10). The reported complications are listed in Table 11.

Table 11

Reported Delivery Complications

Complications with Mother	Complications with Babies
Blood loss	Baby breached, femur broken during extraction
Placenta ruptured	Baby not breathing or trouble breathing
Worry of baby flipping	Cord wrapped around neck
Preeclampsia	Baby blue in color
Low blood pressure and oxygen levels resulting in mother passing out	Decreased heart rate
	Low oxygen saturation, required oxygen
	Low sugar
	No pulse, required CPR

The majority of families (53.8%) had at least one baby admitted to the NICU. At least one baby from 50% of the sets of twins was admitted, and at least one baby from 83.3% of sets of triplets was admitted. This difference was not significant ($df = 1$, $p = .123$). The mean number of days in the NICU for all babies admitted ($n=50$) was 26.7 days. Time in the NICU ranged from two hours to 126 days. More information concerning the NICU can be seen in Table 12.

Table 12

Outcomes of Multiples

Outcome	Percentage or Median
At Least 1 Baby in Set Admitted to NICU	
Entire Sample (n=52)	53.8%
Twins (n=46)	50%
Triplets (n=6)	83.3%
Median Days In NICU	
Baby A (n=23)	15
Baby B (n=23)	15
Baby C (n=5)	30
Babies Released from Hospital at Same Time (n=52)	63.5%
Breastfeeding in Hospital (n=52)	80.8%
Persisting Medical Conditions (n=52)	19.2%

As noted in Table 12, at least one baby in 19.2% of the sets of multiples had persisting medical conditions. These can be viewed in Table 13.

Table 13

Persisting Medical Conditions of Multiples

Conditions	
Allergies, Asthma, Anaphylaxis	Attention Deficit Hyperactivity Disorder (ADHD)
Anemia	Autism
Brain Bleeds	Cleft Lip and Palate
Atrial Septal Defect (ASD) and Ventricular Septal Defect (VSD) - Holes in the heart (National Heart, Lung, and Blood Institute, 2011)	Bronchopulmonary Dysplasia (BPD) - Respiratory problem requiring help to breathe (Greenspan, 2014)
Could Not Tolerate Breast Milk	Extra Fluid on Brain
Internal and External Hemangioma Birthmark	Metabolic Condition
Breathing Problems, on Oxygen, Apnea	Problems with Tooth Enamel
Obsessive Compulsive Disorder (OCD)	Reflux
Vascular Ring - Vessels cause compression or obstruction of the esophagus or airway (Cincinnati Children's, 2012)	

Finances.

Money was a major stressor for many of the study participants and their families, with 62% of participants reporting worry about bills. Several families had to make large purchases to accommodate their newly enlarged families. Over a third of the families (36.7%) had to buy a bigger house when the multiples were born. The majority of families (85.4%) purchased a bigger vehicle to transport the multiples. Only 13% of participants' families received outside

donations. All of these were families of twins, though there was no statistically significant difference between twin and triplet families ($df = 1, p = .309$).

There was a statistically significant difference between the twin mothers and their partners (35%) and triplet mothers and their partners (83.3%) both having to work outside the home to make ends meet ($df = 1, p = .025$). A third of the mothers and/or their partners had to quit their jobs to stay home with the multiples. It is unknown if this was caused by the high cost of childcare, the desire to be a stay-at-home mother or father, or other reasons. These variables can be viewed in Table 14.

Everyday Life.

The participants and their families faced challenges with various everyday-life activities. All of these variables are listed in table 14. Seventy-two percent of the sample expressed feeling physically exhausted during the first year of the multiples' lives. Similarly, over half of the mothers (58%) reported being emotionally overwhelmed during this time. All triplet mothers and 73.3% of twin mothers felt that it was hard to find time to themselves during that year.

Leaving the house also posed as an obstacle for the families. All of the mothers of triplets and 72.7% of twins found it difficult to run errands. This was not a statistically significant difference ($df = 1, p = .142$). Over half of the mothers (58.8%) believed leaving the house for social family outings was hard.

When the families did go out into public, they faced a great deal of curiosity. All triplet mothers and 77.8% of twin mothers experienced unsolicited attention when they took the babies out in public. This was not a statistically significant difference ($df = 1, p = .198$). Overall, 70% of the families received stares from the public when they left the house.

Table 14

Everyday Life during the First Year

Variable	Percentage
Worry about Bills (n=50)	62.0%
Purchase Larger House (n=49)	36.7%
Received Donations (n=46)	13.0%
Errands Difficult (n=50)	76.0%
Mom and/or Partner Quit Job to Stay Home (n=42)	33.3%
Relationship with Partner Negatively Impacted (n=50)	24.0%
Receive Unsolicited Attention (n=51)	80.4%
Feel Like Neglecting Other Children (n=34)	35.3%
Feel Emotionally Overwhelmed (n=50)	58.0%
Family Outings Difficult (n=51)	58.8%
Other Children Act Out (n=31)	12.9%
Public Places Lack Adequate Equipment and/or Space (n=46)	37.0%
Adequate Time for Self (n=50)	24.0%
Physically Exhausted (n=50)	72.0%
Purchased Larger Vehicle (n=48)	85.4%
People Stare at Babies in Public (n=50)	70.0%
Mom and Partner Work Outside Home to Make Ends Meet (n=46)	41.3%
Connect with Other Moms of Multiples (n=51)	62.7%
Receive Positive Reactions in Public (n=50)	88.0%

Chapter 5: Discussion

Summary of Results

The Blossoming Families Study found that families of multiples are experiencing many of the stressors identified in previous studies. These include health complications, financial struggles, and the obstacles of everyday life with infant multiples. However, the study found that the families were thriving in areas previously thought of as deficient, particularly that of family relationships.

Findings suggest that immediate and extended family are the major supports of mothers with multiples. Most mothers receive some form of support, though the length of time the help persists varies greatly from family to family. Unfortunately, the families do not receive a great deal of support from social workers during the conception, pregnancy, birth, or after the multiples come home from the hospital. When social workers do intervene, it is often a short-lived relationship.

Implications

The results of the Blossoming Families Study have implications for families with multiples, social workers, and the healthcare system as a whole.

Social workers are trained and equipped to handle many of the stresses that families with multiples face. Unfortunately, they are not reaching this vulnerable population. It would be beneficial for social workers to be placed in every fertility clinic, hospital, and NICU. Doctors and nurses are not fully equipped to handle all of the psychosocial issues that many families with multiples endure. A multi-disciplinary team approach with families, throughout the entire experience with multiples, would provide more wraparound services for the families and give them the best start possible.

A longer-term relationship between the social worker and family may also be beneficial. The researcher envisions every mother of multiples having a close relationship with a social worker from the time she conceives until the multiples are home from the hospital and thriving. This would allow the families to build a close, trusting relationship with the social worker, similar to that of a patient and primary care physician. Furthermore, the long bed rest that many women pregnant with multiples experiences is the perfect time for this social worker to intervene and further help equip families with the knowledge and resources needed for the labor and delivery processes, potential NICU stays, and the babies' first year of life. This could include identifying families that lack in social supports and setting them up with different community programs to help out once the babies come home.

Limitations and Suggestions for Future Research

The main limitations in this study were the relatively small sample size and the lack of mothers of higher order multiples, such as quadruplets, taking the survey. In addition, the researcher should have asked about race and socioeconomic status to see if these variables affected the experiences of stressors and the interaction of social workers with these families. Furthermore, the participants were not asked about other professionals, such as nurses or counselors, who may have played a role similar to a social worker and helped with possible stresses. Finally, with a quantitative, online survey, the researcher missed the opportunity to connect with study participants and hear about their experiences in detail.

Future studies about the experiences of families with multiples should focus on why social workers are not adequately reaching the families at any stage, from conception until after the babies come home from the hospital.

References

- Adashi, E., Barri, P., Berkowitz, R., Braude, P., Bryan, E., Carr, J.,... Wennerholm, U. (2003). Infertility therapy-associated multiple pregnancies (births): An ongoing epidemic. *Reproductive BioMedicine Online*, 7(5), 27.
- Bachman, D. & Lind, R. (1997a). Perinatal social work and the family of the newborn intensive care unit. *Social Work in Health Care*, 24(3/4), 21-37.
- Bachman, D. & Lind, R. (1997b). Perinatal social work and the high risk obstetrics patient. *Social Work in Health Care*, 24(3/4), 3-19.
- Barbosa,V. (2013). Teamwork in the neonatal intensive care unit. *Physical and Occupational Therapy in Pediatrics*, 33(1), 5-26.
- Children's Hospital of Philadelphia (2015). About twin-twin transfusion syndrome (TTTS). Retrieved from <http://www.chop.edu/conditions-diseases/twin-twin-transfusion-syndrome-ttts/about#.VT6F28547KM>
- Children's Hospital of Wisconsin (2015). Birth defects in monochorionic twins. Retrieved from <http://www.chw.org/medical-care/fetal-concerns-center/conditions/infant-complications/birth-defects-in-mono chorionic-twin/>
- Cincinnati Children's (2012). Vascular rings. Retrieved from <http://www.cincinnatichildrens.org/health/v/rings/>
- Columbus Public Health (2010). Caring for 2. Retrieved from http://www.columbus.gov/uploadedFiles/Public_Health/Content_Editors/Maternal_Health/Caring_for_2/Caringfor2_fullreport_5.11.pdf

- Dill, S. (2006). Economic and social implications of multiple gestation. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 46.
- Garel, M., Salobir, C., & Blondel, B. (1997). Psychological consequences of having triplets: A 4-year follow-up study. *Fertility and Sterility*, 67(6), 4.
- Greenfield, D. (1997). Infertility and assisted reproductive technology: The role of the perinatal social worker. *Social Work in Health Care*, 24(3/4), 39-46.
- Greenspan, J. (2014). Bronchopulmonary Dysplasia. Retrieved from <http://kidshealth.org/parent/medical/lungs/bpd.html#>
- Jenkins, D. A. (2010). Coping with triplets: Perspectives of parents during the first four years. *Health & Social Work*, 35(3), 12.
- Lemos, E., Zhang, D., Van Voorhis, B., & Hu, H. (2013). Healthcare expenses associated with multiple vs singleton pregnancies in the United States. *American Journal of Obstetrics and Gynecology*, 209(6), 11.
- Mayo Clinic (2012). Factor V Leiden. Retrieved from <http://www.mayoclinic.org/diseases-conditions/factor-v-leiden/basics/definition/con-20032637>
- Martin, J., Hamilton, B., Ventura, S., Osterman, M., & Mathews, T. (2013). Births: Final data for 2011. *National Vital Statistics Reports* (Vol. 62). Hyattsville, MD: National Center for Health Statistics.
- Martin, J., Hamilton, B., & Osterman, M. (2012). Three decades of twin births in the United States, 1980-2009. *NCHS Data Brief* (80). Hyattsville, MD: National Center for Health Statistics.

National Heart, Lung, and Blood Institute (2011). Types of holes in the heart. Retrieved from <http://www.nhlbi.nih.gov/health/health-topics/topics/holes/types>

Ohio Department of Health (2014). Children with medical handicaps (BCMh). Retrieved from <http://www.odh.ohio.gov/odhPrograms/cmh/cwmh/bcmh1.aspx>

Ohio Department of Health (2014). Help me grow. Retrieved from <http://www.helpmegrow.ohio.gov/aboutus/What%20is%20Help%20Me%20Grow.aspx>


United States Department of Agriculture (2015). Women, infants, and children (WIC). Retrieved from <http://www.fns.usda.gov/wic/women-infants-and-children-wic>

United States Department of Health and Human Services (2011). The surgeon general's call to action to support breast feeding. Retrieved from <http://www.surgeongeneral.gov/library/calls/breastfeeding/factsheet.html>


Whitaker, B. (1999). Overshadowed texas sextuplets are receiving belated help. *The New York Times*. <http://www.nytimes.com/1999/07/05/us/overshadowed-texas-sextuplets-are-receiving-belated-help.html>

Appendix A: Recruitment Materials



 **BLOSSOMING FAMILIES STUDY**

The **Ohio State University** College of **social work** is conducting a study on the experiences and **coping mechanisms** of families with **multiples**

 **THE OHIO STATE UNIVERSITY**
COLLEGE OF SOCIAL WORK

Participation in the study consists of taking a **10-15 minute** survey at the website below

eligibility to participate
you are **18 or older** + a mother of multiples who are **10 years** or younger

Participants will have the chance to win - **\$25 Target giftcards!**

To find out more about this study, please contact Alison Mooney at mooney.134@osu.edu or blossomingfamiliesstudy.com

This study was approved by The Ohio State University Institutional Review Board on July 31, 2014

Front



 **BLOSSOMING FAMILIES STUDY**


Back



 **ALISON MOONEY**

mooney.134@osu.edu
Blossoming Families Study
blossomingfamiliesstudy.com

 **THE OHIO STATE UNIVERSITY**
COLLEGE OF SOCIAL WORK



BLOSSOMING FAMILIES STUDY

The Ohio State University
College of **social work**
is conducting a study on the
experiences and
coping mechanisms of
families with **multiples**



eligibility to
participate
you are **18** or older +
a mother of multiples
who are **10** years
or younger

Participation in the study
consists of taking a
10-15 minute
survey at (website)

Participants will
have the chance
to win **\$25**
Target
giftcards!

To find out more about this study, please contact
Alison Mooney at mooney.134@osu.edu

This study was approved by The Ohio State University Institutional Review Board on (insert date approved)

 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>	 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>	 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>	 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>	 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>	 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>	 <p>Blossoming Families Study (web URL) for more info contact Alison Mooney mooney.134@osu.edu</p>
--	--	--	--	--	--	--

Appendix B: Blossoming Families Study Website Screenshots

These are screenshots of www.blossomingfamiliesstudy.com. The first page is the home page. The following pages are accessed by clicking on the different boxes on the home screen.



Take the
survey now



I have often wondered,
how do real families
with multiples do it?

Hello! My name is Alison Mooney and I am a senior honors Social Work student at The Ohio State University.

Thank you for your interest in the Blossoming Families Study! The study was born out of my interest in families with multiples. I have seen many of these families on television and have often wondered, "How do real families with multiples do it?" In addition, my mother had four of her six children within three and a half years, and I have heard her stories about the struggles she faced when we were young. As a social work major, I often think about the different ways we could empower these families. Hopefully, the Blossoming Families Study will bring some great ideas and practices to light!

In addition to working on the Blossoming Families Study, I will spend my senior year doing my field placement at Moms2B, an organization in Columbus, Ohio. Moms2B is a comprehensive prenatal program targeted at neighborhoods with high infant mortality rates. After graduation with my Bachelors degree, I plan to earn my Masters in Social Work. My long-term goal is to work as a hospital social worker, preferably in the NICU.



GENERAL

Parenting
What to Expect
Twin Stuff
Mothers of Super Twins

FREEBIES

About Health
Southern Savers

SUPPORT GROUPS

Multiples of America

SUPPORT FOR LOSS

Climb Inc.
Compassionate Friends

DADS

Twins UK
Twin Services
Daddy Blog

OLDER KIDS

Twins UK
Jumelle



Thanks for visiting my site and learning more about the Blossoming Families Study. Feel free to contact me if you have any questions!

Name
Email
Subject
Message

SEND

Appendix C: Screenshots of The Blossoming Families Study Main Survey

Thank you for choosing to participate in The Blossoming Families Study! We value your opinion and honest feedback. This survey will explore the ways you coped physically, emotionally, and financially during the conception, birth, and first year raising multiples. If you feel uncomfortable answering a question, feel free to skip it. At any time during the survey, you have the option to drop out. The survey will take approximately 10 to 15 minutes and will be completely anonymous. Your answers will not be recorded until you hit "Submit" at the end of the survey. Please click the ">>>" button below to continue.

Page Break

Are you 18 years old or older?

☐ Yes

☐ No

If No is Selected, Then Skip To End of Survey

Do you have multiples (twins or higher order)?

☐ Yes

☐ No

If No is Selected, Then Skip To End of Survey

Are the multiples 10 years old or younger?

- ☐ Yes
- ☐ No

If No is Selected, Then Skip To End of Survey

Page Break

The Ohio State University Consent to Participate in Research

Study Title: Blossoming Families Study	
Researchers: Dr. Scottye Cash & Alison Mooney	
Sponsor: The Ohio State University College of Social Work	

This is a consent form for research participation. It contains important information about this study and what to expect if you decide to participate.

Your participation is voluntary.

Please consider the information carefully. Feel free to ask questions before making your decision whether or not to participate. If you decide to participate, you will be asked to sign this form and will receive a copy of the form.

Purpose: The purpose of the Blossoming Families Study is to examine how existing families with multiples cope physically, emotionally, and financially. The most effective coping strategies will be identified so that future families of multiples can implement practices in their own lives. Social workers can use the information gathered in the study to develop and implement relevant services needed by families with multiples.

Procedures/Tasks: You will answer questions about your experiences having multiples on an online survey. Before you are able to take the actual survey, you must answer a few screening questions to ensure that you are eligible. If you qualify for the study, you will be directed to the main study survey. The survey is estimated to take 10-15 minutes to complete. Once you have completed the survey, you will be directed to the separate, optional survey in which you can enter your contact information to be randomly selected to win one of six \$25 Target gift cards. This contact information will be stored in a secure file and destroyed as soon as the winners have been selected.

Duration: The survey is estimated to take between 10 and 15 minutes to complete. It is a one-time commitment. You may choose to stop participating study at any time. If you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship with The Ohio State University.

Risks and Benefits: The risks associated with the Blossoming Families Study are no greater than minimal. You could possibly experience different emotions if the survey brings up memories of negative experiences. Since the survey does not go into great detail, the likelihood of this happening is small and the severity would likely be marginal. By taking part in the study, you may help future families of multiples cope with different stressors that the babies bring. You may also help social workers recognize ways that they can assist families with multiples. Finally, you will have the chance to enter a drawing to win one of six \$25 Target gift cards. If you experience any negative emotions, please contact a local mental health organization or a hotline.

Confidentiality: No identifiable information will be collected during the study survey. After the survey, you will be directed to a separate survey where you will have the option to enter your email address or phone number for the raffle. This information will be kept in a secure file and will be destroyed as soon as a winner is selected.

Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law. Also, your records may be reviewed by the following groups (as applicable to the research):

- Office for Human Research Protections or other federal, state, or international regulatory agencies;
- The Ohio State University Institutional Review Board or Office of Responsible Research Practices;
- The sponsor, if any, or agency (including the Food and Drug Administration for FDA-regulated research) supporting the study.

Incentives: You will have the opportunity to enter a drawing to win one of six \$25 Target gift cards.

Participant Rights: You may refuse to participate in this study without penalty or loss of benefits to which you are otherwise entitled. If you are a student or employee at Ohio State, your decision will not affect your grades or employment status.

If you choose to participate in the study, you may discontinue participation at any time without penalty or loss of benefits. By signing this form, you do not give up any personal legal rights you may have as a participant in this study.

An Institutional Review Board responsible for human subjects research at The Ohio State University reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

Contacts and Questions: For questions, concerns, or complaints about the study, or you feel you have been harmed as a result of study participation, you may contact Alison Mooney at mooney.134@osu.edu or Dr. Scottye Cash at cash.33@osu.edu.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Signing the consent form

I have read (or someone has read to me) this form and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study. I am not giving up any legal rights by selecting "I Agree."

- ☐ I Agree
- ☐ I Disagree

If I Disagree is Selected, Then Skip To End of Survey

Page Break

If you have more than one set of multiples, please refer to your *most recent set of multiples* when answering the following questions, unless otherwise specified.

Page Break

What was your relationship status when you became pregnant or started the pregnancy process?

- ☐ Married
- ☐ Domestic Partnership/Civil Union
- ☐ Engaged
- ☐ Dating
- ☐ Single
- ☐ Divorced
- ☐ Widowed
- ☐ Other

Page Break

Display This Question:

If What was your relationship status when you became pregnant or started the pregnancy process? **Single**
Is **Not Selected**
And What was your relationship status when you became pregnant or started the pregnancy process?
Other Is **Not Selected**

Based on your answer for Question 1, was this a same sex relationship?

- ☐ Yes
- ☐ No

Display This Question:

If What was your relationship status when you became pregnant or started the pregnancy process? **Single**
Is **Not Selected**
And What was your relationship status when you became pregnant or started the pregnancy process?
Other Is **Not Selected**

What year was this partner born?

Page Break

What year were you born?

Display This Question:

If What was your relationship status when you became pregnant or started the pregnancy process? **Other**
Is **Not Selected**

And What was your relationship status when you became pregnant or started the pregnancy process?
Single Is **Not Selected**

Are you currently with the same partner you were with during the pregnancy?

☐ Yes

☐ No

Display This Question:

If What was your relationship status when you became pregnant or started the pregnancy process? **Single**
Is **Not Selected**

And What was your relationship status when you became pregnant or started the pregnancy process?
Other Is **Not Selected**

Was this person present for the birth of the multiples?

☐ Yes

☐ No

..... Page Break

How many children are currently living with you, including the multiples?

Display This Question:
If How many children are currently living with you, including the multiples? 0 is Not Selected

What is your relationship to the child(ren)? Only fill in the bubbles for the number of children who are a part of your household.

	Biological Mother	Non-biological mother	Stepmother	Adopted Mother	Foster Mothe
Child 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 16	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 17	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

What is the order of your most recent set of multiples?

- ☐ Twins (2)
- ☐ Triplets (3)
- ☐ Quadruplets (4)
- ☐ Quintuplets (5)
- ☐ Sextuplets (6)
- ☐ Septuplets (7)
- ☐ Octuplets (8)
- ☐ Other

How old are the multiples currently?

Under 1 year

Have you had any other sets of multiples?

☐ Yes

☐ No

Page Break

Display This Question:

If Have you had any other sets of multiples? Yes is Selected

How many additional sets of multiples have you had (NOT including your most recent set)?

0 4

Display This Question:

If Have you had any other sets of multiples? Yes is Selected

What is the order of your additional set(s) of multiples? Please only answer for the number of additional sets of multiples that you have (NOT including your most recent set).

	Twins (2)	Triplets (3)	Quadruplets (4)	Quintuplets (5)	Sextuplets (6)	Septuplets (7)	Octuplets (8)	Other
First set of multiples	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Second set of multiples	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Third set of multiples	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fourth set of multiples	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fifth set of multiples	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sixth set of multiples	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

What type of fertility treatments were used in the conception of the multiples, if any? Check all that apply.

☐ Prescription fertility medications

☐ In vitro fertilization (IVF)

☐ Surrogacy

☐ None

☐ Other

Did you meet with a social worker at any time when trying to conceive?

☐ Yes

☐ No

Display This Question:**If** Did you meet with a social worker at any time when trying to conceive? **Yes** is **Selected**

Please describe your relationship with the social worker that you met with while trying to conceive.

Page Break

Did you meet with a social worker at any time during your pregnancy?

☐ Yes☐ No

Page Break

Display This Question:**If** Did you meet with a social worker at any time during your pregnancy? **Yes** is **Selected**

Please describe your relationship with the social worker that you met with during your pregnancy.

Page Break

Were you put on bed rest at all during your pregnancy?

☐ Yes☐ No

Page Break

Display This Question:**If** Were you put on bed rest at all during your pregnancy? **Yes** is **Selected**

How many weeks were you on bed rest before the babies were delivered?

What complications, if any, did you experience during your pregnancy? Please check all that apply.

- ☐ Anemia (a lack of healthy red blood cells or hemoglobin)
- ☐ Depression
- ☐ Gestational diabetes
- ☐ Hemorrhages
- ☐ Hypertensive disorders
- ☐ Miscarriage
- ☐ Nausea
- ☐ Placental abruption
- ☐ Preeclampsia
- ☐ Preterm labor
- ☐ Urinary tract infection
- ☐ None
- ☐ Other

How many weeks pregnant were you when you delivered the babies?

How were the multiples delivered?

- ☐ Vaginally
- ☐ C-section
- ☐ A combination of vaginally and C-section

Were you informed by the health care professionals that you (mother) had any complications during delivery?

- ☐ Yes
- ☐ No
- ☐ Unsure/Don't know

Page Break

Display This Question:

If Were you informed by the health care professionals that you (mother) had any complications during delivery? Yes Is Selected

What complications did you (mother) have during delivery?

☐ Yes

☐ No

☐ Unsure/Don't know

	Complication(s) During Delivery
Baby A	
Baby B	
Baby C	
Baby D	
Baby E	
Baby F	
Baby G	
Baby H	

☐ Yes

☐ No

[illegible]

Display This Question:**If** Were any of the babies admitted to the Neonatal Intensive Care Unit (NICU)? **No** is **Selected**

Were all of the babies released from the hospital at the same time?

☒ Yes☐ No

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Page Break 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Did you have contact with a social worker in the hospital after the babies were born?

☐ Yes☒ No

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Page Break 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Display This Question:**If** Did you have contact with a social worker in the hospital after the babies were born? **Yes** is **Selected**

Please describe your relationship with the social worker that you met with in the hospital after the babies were born.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Page Break 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Were you able to start breastfeeding while the babies were in the hospital?

☐ Yes☒ No

Did any of the babies have persisting medical conditions?

☐ Yes☒ No

Display This Question:**If** Did any of the babies have persisting medical conditions? **Yes** Is **Selected**

Please list the persisting medical condition(s) of each baby. If one of the babies had no persisting medical conditions, please write "none." Only list the medical conditions for the number of babies that you delivered.

	Persisting Medical Condition(s)
Baby A	<input type="text"/>
Baby B	<input type="text"/>
Baby C	<input type="text"/>
Baby D	<input type="text"/>
Baby E	<input type="text"/>
Baby F	<input type="text"/>
Baby G	<input type="text"/>
Baby H	<input type="text"/>

Page Break

Did you have contact with a social worker after the babies came home from the hospital.

☐ Yes

☐ No

Page Break

Display This Question:**If** Did you have contact with a social worker after the babies came home from the hospital. **Yes** Is **Selected**

Please describe your relationship with the social worker that you met with after the babies came home from the hospital.

Display This Question:

If Who helped you care for the babies after they came home from the hospital. Please check all that apply.
Nobody is **Not Selected**


How long did you have outside help caring for the multiples?

- ☐ 1-2 weeks
- ☐ 3-4 weeks
- ☐ 5-7 weeks
- ☐ 2-4 months
- ☐ 5-7 months
- ☐ 8-10 months
- ☐ 11+ months

Who helped you care for the babies after they came home from the hospital. Please check all that apply.

- ☐ Immediate family (spouse, older children)
- ☐ Extended family (parents, grandparents, siblings, aunts, uncles, cousins, nieces, nephews)
- ☐ Friends
- ☐ Neighbors
- ☐ Church members
- ☐ Paid nanny, babysitter, or housekeeper
- ☐ Nobody
- ☐ Other

[illegible]

Appendix D: Screenshot of Contact Information Survey

If you would like to be entered for a random chance to win one of six \$25 Target gift cards, please provide your contact information below. You may enter either your email address or a phone number. This information will be in no way tied to your answers from the previous survey. It will be stored in a password protected folder. As soon as the study has ended and the winners have been selected, the contact information will be destroyed.

Please provide either a valid email address or phone number (with area code) in the box provided.